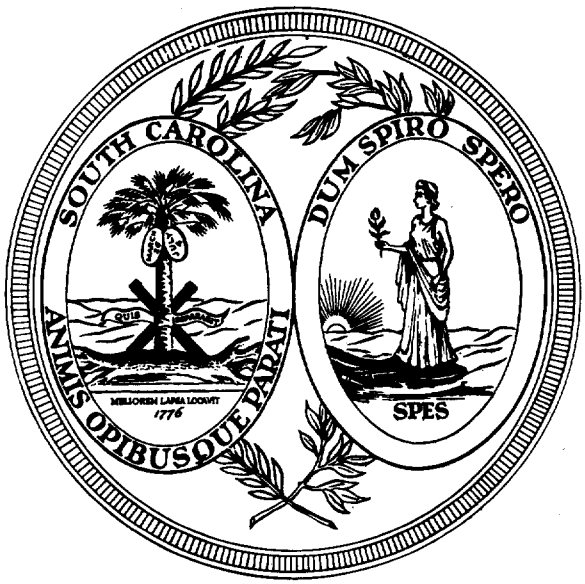
WATER CLASSIFICATION STANDARDS SYSTEM

FOR THE STATE OF SOUTH CAROLINA



South Carolina
Department of Health
and
Environmental Control

1974

SOUTH CAROLINA

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

J. Marion Sims Building

Columbia, South Carolina 29201

Adopted by the PCA—September 8, 1971

Filed with the Secretary of State—September 10, 1971

Approved by U. S. Environmental Protection Agency–December 23, 1971

& January 15, 1973

This Supercedes All Previous Versions

WATER CLASSIFICATION-STANDARDS SYSTEM FOR THE STATE OF SOUTH CAROLINA

Promulgated under authority of Act Number 1154, 1970 Acts and Joint Resolutions of The South Carolina General Assembly, signed by The Governor on the 29th day of April, 1970.

SECTION 1

DEFINITIONS

The definition of any word or pharse employed in Section II, III, or IV shall be the same as given in the South Carolina Pollution Control Law. The following words or phrases which are not defined in said law shall be defined or have meanings as follows:

Source of water supply for drinking, culinary or food processing purposes shall mean any source, either public or private, the waters from which are used for domestic consumption, or used in connection with the processing of milk, beverages, food or for other purposes which require finished water meeting U. S. Public Health Service Drinking Water Standards.

Approved treatment as applying to water supplies means treatment accepted as satisfactory by the authorities responsible for exercising supervision over the sanitary quality of water supplies.

Bathing shall include swimming but shall be regarded as a best usage only for waters in which bathing is or may be expected to be subject to effective supervision and control.

Fishing shall include the propagation of fish and other aquatic life.

Agricultural shall include use of water for stock watering, irrigation, and other farm purposes.

Tidal Waters shall mean all waters whose elevation is subject to periodic changes under the influence of oceanic tides.

Tidal salt waters shall mean those tidal waters which have a chloride ion content in excess of 250 milligrams per liter (mg/L).

Underground disposal shall mean the disposal of wastes by pumping or allowing to flow by gravity into the ground in such a manner as to enter the subsurface strata of the earth. Such disposal is not to be permitted without the most careful justification. This definition does not cover the use of tile fields in connection with septic tanks, or any other type of ground waste disposal permitted under State regulatory supervision.

Controlled Discharge of wastes shall refer to the practice of holding industrial wastes, domestic sewage, or mixtures of the two, in lagoons, tanks, or other suitable containers for discharge at appropriate times. Such lagoons, tanks, or containers shall be considered waste treatment plants to be operated on permit of the Authority as specified by the Pollution Control Law and shall be operated in the manner specifed by the permit.

Point of Discharge shall mean that location in or adjacent to a body of water at which any liquid, solid or gaseous substances are discharged or deposited.

Propagation shall mean the continuance of species by generation or successive production in the natural environment, as opposed to the maintenance of species by artificial culture and stocking.

Natural or Naturally Occurring Values shall mean for all of the waters of the state:

a. those water quality values which exist unaffected by—or unaffected as a consequence of —any water use by any person; or

b. those water quality values which exist unaffected by the discharge, or direct or indirect deposit of, any solid, liquid, or gaseous substance by any person.

Swamp Waters shall refer to those waters having those color and chemical characteristics found in waters which have been exposed for a substantial time to decaying vegetable matter under natural conditions. Under appropriate conditions this designation shall be applied without regard to velocity of the flow of the water.

Impoundment shall mean a manmade lake, pond or facility designed for the purpose of treating, stabilizing, neutralizing, or otherwise rendering innocuous sewage, industrial waste, or other wastes as defined in Section I of the Pollution Control Act of 1970.

SECTION II

Waters whose existing quality is better than the established standards will not be lowered in quality unless and until it has been affirmatively demonstrated to the South Carolina Pollution Control Authority that such change is justifiable as a result of necessary economic or social development and will not interfere with or become injurious to any assigned uses made of such waters. Any industrial, public or private project or development which could constitute a new source of pollution or an increased source of pollution to high quality waters will be required by the South Carolina Pollution Control Authority as part of the initial project design to provide the highest and best degree of waste treatment practical under existing technology. In implementing the policy of this paragraph as it relates to interstate streams, the Administrator of the Environmental Protection Agency will be advised and provided with such information as he will need from time to time to protect the interests of the United States and the authority of the Administrator in maintaining high quality of interstate waters.

SECTION III

RULES APPLICABLE TO ALL CLASSES AND STANDARDS

The General Assembly of South Carolina in the 1970 Pollution Control Act of South Carolina has declared the following policy:

> *"It is declared to be the public policy of the State to maintain reasonable standards of purity of the water resources of the State, consistent with the public health, safety and welfare of its citizens, maximum employment, the industrial development of the State, the propagation and protection of terrestrial and marine flora and fauna, and the protection of physical property and other resources. It is further declared that to secure these purposes and the enforcement of the provisions of this act, the Pollution Control Authority shall have authority to abate, control and prevent pollution."*

Consistent with this policy, the Pollution Control Authority of South Carolina does adopt general rules for the waters of South Carolina as follows:

1. The classes and standards set forth in Section IV are intended to protect public health and welfare by providing criteria for the streams of South Carolina which will stabilize and improve water quality in step with changes in the economy of the State and new technical developments. No permit issued hereunder, therefore, shall be interpreted as creating any vested right in any person.

2. No waters of this State shall be used for the sole or principal purpose of transporting wastes.

3. No wastes amenable to treatment or control shall be discharged into any State waters without treatment or control. All bio-degradable waste, prior to discharge into any State waters, shall receive a minimum of secondary treatment and all other wastes an equivalent degree of treatment, unless it can be demonstrated that a lesser degree of treatment or control will provide for water quality improvement consistent with present and anticipated future water uses.

4. In any case where a body of water is tributary to another body of water which is classified in a higher class, the quality of the water in the tributary shall be maintained at a level which will not cause a contravention of the higher standards of the downstream body.

5. Tests or analytical determinations to determine compliance or non-compliance with standards shall be made in accordance with methods and procedures approved by the Pollution Control Authority. (In approving methods, so far as practical and applicable, the Authority will be guided by the latest edition of "Standard Methods for the Examination of Water, Sewage, and Industrial Waste" published by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation.)

6. In making any tests or analytical determinations on classified waters to determine compliance or non-compliance with water quality standards, representative samples shall be collected at locations approved by the Pollution Control Authority.

   a. Samples shall be taken from points so distributed over the area and depth of the waters being studied as to permit a realistic appraisal of such actual or potential damage to water use or aquatic life as may exist.

b. Bioassay methods may be employed in appropriate situations to determine medium tolerance limits (TLm) and/or concentration of toxic substances.

c. Temporal distribution of samples in tidal waters shall be such as to cover the full range of tidal conditions.

d. The criteria are applicable to any fresh water stream when the flow rate is equal to or greater than the minimum seven-day average flow rate that occurs with an average frequency of once in ten years.

7. General water quality criteria are established to maintain in the waters of the State a water quality sufficient for the survival and general well-being of fish and other aquatic life during period of migration and passage.

a. The waters of the State shall at all times be free from:

(1) Substances attributable to sewage, industrial waste, or other waste that will settle to form sludge deposits that are unsightly, putrescent or odorous to such degree as to create a nuisance, or that interfere directly or indirectly with water uses;

(2) Floating debris, oil, grease, scum and other floating materials attributable to sewage, industrial waste, or other waste in amounts sufficient to be unsightly to such a degree as to create a nuisance or that interfere directly or indirectly with water uses;

(3) Materials attributable to sewage, industrial waste, or other waste which produce taste, odor, or change the existing color or other physical and chemical conditions in the receiving stream to such degree as to create a nuisance, or that interfere directly or indirectly with water uses; and

(4) High-temperature, toxic, corrosive or other deleterious substances attributable to sewage, industrial waste, or other waste in concentrations or combinations which interfere directly or indirectly with water uses, or which are harmful to human, animal, plant or aquatic life.

b. These general criteria establish basic water quality requirements for all South Carolina waters and are to be implemented and enforced:

(1) For all waters for which no specific water quality standards are established;

(2) Wherever and whenever specific water quality standards are not applicable because natural flow conditions are lower than those which occur at the minimum seven-day average flow that occurs with a frequency of once in ten years;

(3) In addition to specific water quality standards as established in Section IV of these standards.

8. In any case where streams are not otherwise classified and are tributaries to a classified stream they shall meet the quality standards of the classified stream.

9. Natural waters may on occasion have characteristics outside of the limits established by the standards. The standards adopted herein relate to the condition of waters as affected by the discharge of sewage, industrial wastes or other wastes. The specified standards will not be considered violated when values outside the established limits are caused by natural conditions. Where wastes are discharged to such waters, the discharger shall not be considered a contributor to substandard conditions provided maximum treatment in compliance with permit requirements is maintained and, therefore, meeting the established limits is beyond his control.

10a. The streams or portions of streams specified below shall be considered to be upper Piedmont streams and shall not exceed a temperature of 84°F at any time, after adequate mixing of heated and normal water, as the result of the discharge of heated liquids, nor shall the water temperature after passing through an adequate zone of mixing be more than 5°F greater than that of water unaffected by the heated discharge. Provided: That the zone for mixing shall be limited to not more than 25 percent of the cross sectional area and/or volume of the flow of the stream and shall not include more than one-third of the surface area measured from shore to shore.

1. Chatooga River and tributaries.
2. That portion of Chauga River above the Hartwell Reservoir.
3. That portion of Keowee River and tributaries above Keowee Reservoir.
4. That portion of Saluda River and tributaries above Saluda Lake.
5. Those portions of South Tyger, North Tyger and Enoree Rivers and tributaries above the Southern Railroad.
6. That portion of the South Pacolet River and tributaries above Lake Bowen.
7. Those portions of Broad River and Kings Creek that are above the junction of these two streams.

b. All fresh waters of the State other than upper Piedmont waters shall not exceed a temperature of 90°F at any time, after adequate mixing of heated and normal waters as a result of heated liquids, nor shall the water temperature after passing through an adequate zone for mixing be more than 5°F greater than that of water unaffected by the heated discharge. Provided: That the zone for mixing shall be limited to not more than 25 percent of the cross sectional area and/or volume of the flow of the stream and shall not include more than one-third of the surface area measured from shore to shore.

c. The temperature of tidal waters shall not exceed 4°F above the natural temperature during the fall, winter or spring and shall not exceed 1.5°F above the natural temperature during the summer months.

d. All waters of the lakes and reservoirs of the State located on streams specified in 10a. above shall not exceed a monthly average temperature of 84°F at any time, after adequate mixing of heated and normal water, as the result of the discharge of heated liquids, nor shall the monthly average water temperature after passing through an adequate zone of mixing be more than 3°F greater than that of the water unaffected by heated discharge. The size of the mixing zone will be determined on an individual project basis and will be based on normal engineering considerations and the area affected shall be kept at a minimum. The mixing zone shall not prevent free passage of fish or cause fish casualty.

e. All waters of lakes and reservoirs of the State located on streams other than upper Piedmont waters shall not exceed a monthly average temperature of 90°F at any time, after adequate mixing of heated and normal waters as a result of heated liquids, nor shall the monthly average water temperature after passing through an adequate zone for mixing be more than 3°F greater than that of water unaffected by the heated discharge. The size of the mixing zone will be de-

termined on an individual project basis and will be based on normal engineering considerations and the area affected shall be kept to a minimum. The mixing zone shall not prevent free passage of fish or cause fish casualty.

f. Compliance with temperature standards (as specified in 10a., b., and c.) in streams below impoundments to include those which are used for cooling purposes (as judged by the PCA to be in the public interest) shall be based on measurements in the receiving waters below the impoundment.

SECTION IV

ESTABLISHED CLASSES FOR FRESH SURFACE WATERS AND THE STANDARDS OF QUALITY AND PURITY WHICH SHALL BE APPLIED THERETO:

CLASS AA

Water suitable for use for domestic and food processing purposes with disinfection and pH adjustments as the only treatment required. Suitable also for trout survival where so specified and for uses requiring water of lesser quality.

QUALITY STANDARDS FOR CLASS AA WATERS

ITEMS	SPECIFICATIONS
1. Sewage, treated waste, thermal discharges, or other waste effluents.	None
2. Dissolved Oxygen	Not less than 6 mg/l with a daily average of 7 mg/l.
3. Toxic wastes, deleterious substances, colored or other wastes.	None in amounts to exceed limitations set forth in the latest edition of U. S. Public Health Service Drinking Water Standards.
4. Fecal coliform.	Not to exceed 20/100 ml as a monthly arithmetic average.

CLASS A

Waters suitable for use as swimming waters. Suitable also for other uses requiring waters of lesser quality.

QUALITY STANDARDS FOR CLASS A WATERS

ITEMS	SPECIFICATIONS
1. Fecal coliform.	Not to exceed a geometric mean of 200/100 ml; nor shall more than 10% of the total samples during any 30 day period exceed 400/100 ml.
2. Phenolic compounds.	Not greater than 1 microgram per liter, unless caused by natural conditions.
3. pH.	Range between 6.0 and 8.0, except that swamp waters may range from pH 5.0 to pH 8.0.
4. Dissolved Oxygen.	Not less than 5 mg/l, except that swamp waters may have an average of 4 mg/l.

CLASS B

Waters suitable for domestic supply after complete treatment in accordance with requirements of the South Carolina State Board of Health. Suitable also for propagation of fish, industrial and agricultural uses and other uses requiring water of lesser quality.

QUALITY STANDARDS FOR CLASS B WATERS

ITEMS	SPECIFICATIONS
1. Fecal coliform.	Not to exceed a log mean of 1000/100 ml based on five consecutive samples during any 30 day period; nor to exceed 2000/100 ml in more than 20% of the samples examined during such period (not applicable during or following periods of rainfall).
2. pH.	Range between 6.0 and 8.5, except that swamp waters may range from pH 5.0 to pH 8.5.
3. Dissolved Oxygen	Daily average not less than 5 mg/l with a low of 4 mg/l, except that swamp waters may have an average of 4 mg/l.
4. Phenolic compounds.	Not greater than 1 microgram per liter unless caused by natural conditions.

CLASS C[1]

Waters suitable for fish survival*, industrial and agricultural uses and other uses requiring water of lesser quality.

QUALITY STANDARDS FOR CLASS C WATERS

ITEMS	SPECIFICATIONS
1. pH.	Range between 6.0 and 8.5, except that swamp waters may range between 5.0 and 8.5.
2. Dissolved Oxygen.	Not less than 3 mg/l, except that swamp waters may have a low of 2.5 mg/l.
3. Fecal coliform	Not to exceed a log mean of 1000/100 ml based on five consecutive samples during any 30 day period; nor to exceed 2000/100 ml in more than 20% of the samples examined during such period (not applicable during or immediately following periods of rainfall).

[1]*To apply only to streams receiving waste prior to May 4, 1950, and not be applied to streams with a seven-day once in ten years occurrence flow of more than 22.5 mgd nor shall this classification be assigned to interstate streams.*

**"Fish Survival" as used in this standard means the continued existence of individual fish normally indigenous to water of this type.*

CLASSES AND STANDARDS FOR TIDAL SALT WATERS

CLASS SA

Waters suitable for shellfishing for market purposes and any other usages. Suitable also for uses requiring water of lesser quality.

QUALITY STANDARDS FOR CLASS SA WATERS

ITEMS	SPECIFICATIONS
1. Garbage, cinders, ashes, oils, sludge or other refuse.	None.
2. Sewage or waste effluents.	None which are not effectively disinfected.
3. Dissolved Oxygen.	Not less than 5 mg/l.
4. Toxic wastes, deleterious substances, colored or other wastes.	None alone or in combination with other substances or wastes in sufficient amounts as to be injurious to edible fish or shellfish or the culture or propagation thereof, or which in any manner shall adversely affect the flavor, color, odor, or sanitary condition thereof or impair the waters for any other best usage as determined for the specific waters which are assigned to this class.
5. Organisms of coliform group.	Shall meet U. S. Public Health Service Standards. (1965 Revision)
6. pH.	Shall not vary more than 3/10 of a pH unit above or below that of effluent-free waters in the same geographical area having a similar total salinity, alkalinity and temperature.

CLASS SB

Waters suitable for bathing and any other usages except shellfishing for market purposes. Suitable also for uses requiring water of lesser quality.

QUALITY STANDARDS FOR CLASS SB WATERS

ITEMS	SPECIFICATIONS
1. Garbage, cinders, ashes, oils, sludge or other refuse.	None.
2. Sewage or waste effluents.	None which are not effectively disinfected.
3. Dissolved Oxygen.	Not less than 5 mg/l.

4. Toxic wastes, deleterious substances, colored or other wastes.	None alone or in combination with other substances or wastes in sufficient amounts as to be injurious to edible fish or the culture or propagation thereof, or which in any manner shall adversely affect the flavor, color, odor, or sanitary condition thereof; to make the waters unsafe or unsuitable for bathing or impair the waters for any other best usage as determined for the specific waters which are assigned to this class.
5. Fecal coliform.	Not to exceed a geometric mean of 200/100 ml; nor shall more than 10% of the samples in any 30 day period exceed 400/100 ml.
6. pH.	Shall not vary more than one-half of a pH unit above or below that of effluent-free waters in the same geographical area having a similar total salinity, alkalinity and temperature, but not lower than 6.75 or above 8.5.

CLASS SC

Waters suitable for crabbing, commercial fishing and any other usages except bathing or other shellfishing for market purposes. Suitable also for uses requiring water of lesser quality.

QUALITY STANDARDS FOR CLASS SC WATERS

ITEMS	SPECIFICATIONS
1. Fecal coliform.	Not to exceed a log mean of 1000/100 ml based on five consecutive samples during any 30 day period; nor exceed 2000/100 ml in more than 20% of the samples examined during such period (not applicable during or immediately following period of rainfall).
2. Garbage, cinders, ashes, oils, sludge or other refuse.	None.
3. Dissolved Oxygen.	Not less than 4 mg/l.
4. Toxic wastes, oils, deleterious substances, colored or other wastes.	None alone or in combination with other substances or wastes in sufficient amounts as to be injurious to edible fish or the culture or propagation thereof, or which in any manner shall adversely affect the flavor, color, odor, or sanitary condition of fish or impair the waters for any other best usage as determined for the specific waters which are assigned to this class.

5. pH.	Shall not vary more than one pH unit above or below that of effluent-free waters in the same geographical area having a similar total salinity, alkalinity and temperature but not lower than 6.75 or above 8.5.

I certify that the foregoing action was approved as indicated by the South Carolina Pollution Control Authority in regular session on September 8, 1971, and further that said action is hereby filed with the Secretary of State and the Code Commission of South Carolina on the 10th day of September, 1971, under the authority of South Carolina Law, Section 70-101 through 70-139, as recorded in Vol. 14, Code of Laws of South Carolina, 1962, and supplement thereto.

HUBERT J. WEBB

Hubert J. Webb

Executive Director
Pollution Control Authority

CERTIFIED IN ACCORDANCE
WITH ACT NO. 716 OF 1964
Code Commissioner

In addition to the approval of PCA, Mr. William D. Ruckelshaus, Administrator of the United States Environmental Protection Agency, by letter dated December 23, 1971, to the Honorable John C. West, Governor of South Carolina, approved this Water Classification-Standards System. With this Federal approval these water quality standards fulfill the requirements of the Federal Water Pollution Control Act as well as the State Pollution Control Law. Excerpts from this letter follow:

Honorable John C. West
Governor of South Carolina
Columbia, South Carolina 29211

Dear Governor West:

I am pleased to inform you that I am now approving South Carolina's water quality standards in their entirety, based upon my determination that they are consistent with the protection of the public health and welfare, the enhancement of the quality of the water and the purposes of the Federal Water Pollution Control Act, as provided by Section 10 (c) (3) of the Act. The standards consist of the South Carolina Pollution Control Authority Water Classification-Standards System for the State of South Carolina, adopted September 8, 1971; the use classifications previously approved with the addition of the designation of Upper Piedmont streams contained in paragraph 10-a of the standards which I am now approving; and the previously approved implementation plan. The standards as approved are those applicable under the Federal Water Pollution Control Act, as amended, to the interstate waters of South Carolina . . .

. . . Finally, we are all aware that water quality standards may be subject to change as we acquire new knowledge and understanding of the factors that affect water quality and as existing conditions are improved. The Office of Water Programs looks forward to continuing its cooperation with the Pollution Control Authority for the preservation and enhancement of water quality in South Carolina.

Sincerely yours,

William D. Ruckelshaus
Administrator

By letter of January 18, 1973 to Dr. Hubert J. Webb, Executive Director, South Carolina Pollution Control Authority, Mr. Jack E. Ravan, Regional Administrator, Region IV, Environmental Protection Agency, Atlanta, Georgia, stated that the Water Classification Standards System for South Carolina appeared to meet the requirements of the Federal Water Pollution Control Act as amended on October 18, 1972.